

Status Report

Treatment of Richard Mine AMD Problem

January 4, 2008

Background. The *Natural Resources Conservation Service* (NRCS) is providing technical assistance to the sponsors for a project to correct an Acid Mine Drainage (AMD) problem at the Richard Mine, near Morgantown. The AMD discharge from the abandoned coal mine is well documented and has existed for many years. This project is in the Deckers Creek Watershed and was originally identified in the Supplemental Watershed Plan No. 1 and Environmental Assessment of September 2000.

AMD Problem. Before 1988, AMD was seeping from the underground mine works in the community of Richard. In 1988 there was a blowout from the base of the mountainside that started a significant flow into Deckers Creek. The AMD discharge flows from a mine seal that was installed by the DEP/AML with a typical range of 100 to 600 gallons per minute. This discharges into an open channel that flows directly into Deckers Creek. This AMD impairs the water quality in Deckers Creek by adding acidity and heavy metals. The stream from the discharge to the Mon River (about 5-miles) is virtually dead of aquatic life.

Project Goal. The overall goal of this project is to improve the water quality in Deckers Creek to restore the fish habitat in the lower 5-miles of the stream. There would be many benefits to the natural environment for Monongalia County and the City of Morgantown, including the aesthetic improvements of removing the orange staining caused by the AMD precipitate.

Project Phases. The project will be done in **five phases**: 1) Analysis of Problems and Compilation of Alternatives, 2) Develop Scope of Work, 3) Site Investigation, 4) Preliminary Design, & 5) Final Design. With the *West Virginia Conservation Agency* (WVCA) providing contracting services, *GAI Consultants* was hired for the first phase of the work. The first phase of work resulted in a *Treatment Alternatives Report*, completed in October 2007. This report provides recommendations and alternatives for the best ways treat the AMD problem.

Project Schedule. The following are the major milestones for the primary project phases. These target dates are subject to change. There are many variables associated with this project, including strict environmental reviews.

2008 – Flow Monitoring & Selection of Treatment Alternative
2009 – Site Investigation & Preliminary Design
2010 – Final Design of Treatment System
2011 – Construction & Start of Operations

Flow Monitoring. During the analysis phase of the project it was determined that additional flow and rainfall data would be helpful for subsequent phases of work on the project. Flow and rainfall will be measured for 12-months in 2008 to provide data for follow-on design work of an effective treatment system.

AMD Treatment Alternatives. The initial list of treatment methods and alternatives consisted of 34 of the known ways of solving AMD problems. From that list, the most economical and practical methods for treating the problem were identified. The top four alternatives under consideration are 1) Lime dispensing doser with settling pond, 2) Hydrated lime with mechanical mixing, 3) Gas injection of anhydrous ammonia, and 4) Activated iron solids. There are no ideal ways of solving the AMD problem; all have advantages and disadvantages, including related environmental consequences. One of the disadvantages of active treatment is the resulting sludge from the metal removal. It is estimated that this will create 6,500 cubic yards of sludge per year that will have to be

managed. However, the benefits to the lower reaches of Deckers Creek will be significant. The final solution could be a combination of treatment alternatives and will be partially dependent upon the information obtained during the flow monitoring. The project sponsors envision a Deckers Creek where fishing will be one of many other recreational attractions.

Current Status. As of 1/4/2008, the flow monitoring equipment is installed and being tested. The consultant is looking for a good location to place the rain gage. The flow coming from the mine was at 700 gpm during the weir installation. The monitoring equipment will be powered by a solar panel, which makes the station stand-alone. Monthly data reports will be submitted for a period of 12-months. The flow and acidity will be continuously monitored, and a relationship with the rainfall will also be established to determine the lag time between rainfall events and flow from the mine.

Project Sponsors. The USDA NRCS is provides technical assistance and manages the federal funding for the project, but the sponsors are the ones making the project a reality. Sponsors include the following: Monongahela Soil Conservation District, West Virginia Conservation Agency, WV Division of Natural Resources, WV Department of Environmental Protection, Monongalia County, and Preston County. There are also numerous supporting organizations, including the Friends of Deckers Creek, Office of Surface Mining, and the City of Morgantown.



Picture of the Richard Mine Acid Mine Drainage (AMD) entering Deckers Creek about 5-miles upstream of the Monongahela River. Deckers Creek is a scenic stream that could become a great place for fly fishing and other recreational pursuits if the AMD is removed from the creek. From the pictured location, Deckers Creek meanders through Morgantown, past Marilla Park, and through neighborhoods. The creek is visible and accessible to the population of the Morgantown area. The Deckers Creek Rail Trail parallels the creek from Reedsville, West Virginia down to the Monongahela River near Morgantown's Wharf District. Picture taken on June 6, 2005 by TJ Burr, USDA NRCS.